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ABSTRACT

This report briefly summarizes the motivation research strategy and results from the Kamehameha Early Education Program (KEEP). The rationale behind KEEP's use of on-task behavior to measure student motivation is discussed and the two strategies of motivation enhancement researched are described. These two strategies were: (1) staff training in the systematic use of behavior management techniques and (2) classroom formats and organization which increase student attentiveness and productivity. Information is presented on the background for choosing these strategies, the procedures involved in implementing them, and the results of research evaluating their effectiveness in increasing student motivation. (JMB)

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The Kamehameha Early Education Program

The Kamehameha Early Education Program (KEEP) is a research and development program of The Kamehameha Schools/Bernice P. Bishop Estate. The mission of KEEP is the development, demonstration, and dissemination of methods for improving the education of Hawaiian and Part-Hawaiian children. These activities are conducted at the Ka Na'i Pono Research and Demonstration School, and in public classrooms in cooperation with the State Department of Education. KEEP projects and activities involve many aspects of the educational process, including teacher training, curriculum development, and child motivation, language, and cognition. More detailed descriptions of KEEP's history and operations are presented in Technical Reports #1-4.

Abstract

This report summarizes the motivation research strategy and results. Work in this area is virtually completed with a number of data-based conclusions available to guide future program plans.

Technical Report #24

KEEP Motivational Research: Strategy and Results

Ronald Gallimore Roland G. Tharp

The attribution to Hawaiian and other Island children of inadequate motivation is the most common explanation of substandard school achievement. Younger students are described as having a short attention spanand a general inability to do sustained work. Older students are seen as indifferent to the long term benefits of short term scholastic effort. Family attitudes and practices are cited as causative factors. Although we found, by survey of Island communities, various opinions about behavior and academic problems, inadequate motivation was unanimously listed as an area in which solutions were needed.

The KEEP Motivation Research Strategy

The overall research strategy at KEEP is outlined in Technical Report #4. In brief, KEEP began with a program modelled on the best examples of public school practices observed in some 100 classrooms. Our plan is to introduce changes gradually, carefully evaluating each in turn and only after substantive research findings warrants a shift from DOE practices. The intent was to identify the minimum number of changes in DOE practices necessary to obtain optimal Hawaiian educational achievement.

We believed, on the basis of previous research, that motivation was the best place to begin the work of KEEP. Indeed, when KEEP

began, there was some basis for believing that changes in this area alone might be sufficient to eliminate Hawaiian educational problems. Many Island educators reported motivational problems were paramount in the primary years, and antecedent to later elementary school academic retardation. Presumably, the Hawaiian-American child enters school with strong peer prientation habits due to cultural factors. Teachers become gradually more critical and punitive as their usual approaches yield little change, making peers even more attractive attention foci. The stage is set for increasing academic difficulties. Interruption of this unfortunate chain of events might eliminate later difficulties, and make unnecessary extensive studies of the effects of curricula on the educational performance of the Hawaiian-American child. In any event, beginning with research on motivation was a logical and necessary step, even if later shown to be insufficient.

Definition of Motivation

There are a variety of theoretical conceptions of motivation. Behavioral and social scientists have devoted a very large amount of effort to the study and conceptualization of motives, their origins and manifestations.

At KEEP, "motivation" is measured by its effect. That is, how often a child is observed to be doing his school work, attending to his teacher, etc. Naturally, this does not exhaust the alternative definitions. However, it has several advantages. First, it is directly related to what most Island educators mean when they refer to inadequate motivation of students. Second, it avoids the problems of cul-

ture bias and ethnocentrism that arise when motivation is defined in terms of hypothetical internal states, such as need for achievement. Third, it defines a specific and common behavioral goal for teachers and researchers alike. Finally, it directs attention to situations and factors over which teachers and researchers can hope to have influence; conceptions of motivation that place the locus of determination in the child-rearing practices of the families eliminate for all practical purposes, any possibility that the public schools can influence a child's motivation to do academic work.

Other approaches to the study of motivation have been conducted at KEEP. Falbo (1973) examined the motivational effects of differential attribution of causation to task difficulty, personal skill, effort, and chance. Studies of social factors in language code use are under way or planned (see Technical Report #14). Anthropological research planned by colleagues at UCLA involves analysis of motivational variables. To these activities can be added the fund of information derived from previous research that focused heavily on studies of Hawaiian-American motivation, antecedents, situational determinants, and individual differences.

In classroom and consultation research, however, motivation is measured by its effects. That is, by how often the children are at their assigned task. It is a definition that is face valid to Hawaii's educators and parents; teachers never consider children at work to be lazy, unmotivated, inattentive, irrespective of their culture and community. Thus, increasing motivation is defined at KEEP as a search for ways to get children working at their academic tasks.

Techniques for Increasing Student Motivation

We have researched two strategies of motivation enhancement. 1) Staff training in the systamatic use of behavior management techniques; and 2) classroom formats and organization which increase student attentiveness and productivity. The potentials of these approaches was suggested by several lines of research. International workers in educational behavior analysis have achieved significant gains with problematic student populations (e.g., Tharp and Wetzel, 1969). In the main, these advances have relied heavily on increased teacher use of systematic reinforcement, and related forms of behavior management. More recently, effective application of this approach has been made with ethnic minorities with severe educational problems, for example, the nationally prominent bicultural programs of the Behavior Associates group of Tucson, Arizona, whose staff has made significant contributions to our approach.

Studies of motivation enhancement in Hawaiian classrooms were presented by Gallimore, Boggs, and Jordan (1974, and summarized in Technical Report #2). They also focused on behavior management and classroom motivation, i.e., amount of student work, etc. They found teacher use of social reinforcement (e.g. praise, supportive statements) was repeatedly demonstrated to have a profound effect on the amount of attention and work produced by the children. Gallimore, et al. suggested that this might be for cultural reasons, but added the caution that positive teacher behavior has been almost universally advocated by progressive educators. They suggested that whatever the reason, teachers who attended to the skillful and systematic use of positive social reinforcement could expect to elicit high degrees of

motivation in the Hawaiian population.

Gallimore et al. also concluded that the organization of work groups had a significant effect on attention to task and task productivity. They reviewed a number of sources of evidence which together suggested that Hawaiian-American students would tend to do better if allowed to work together, or at least were not punished for their strong orientation toward peer interaction. Naturally, the affiliative orientation is related to the responsiveness to social reinforcement; any individual who is responsive to social reinforcement can be expected to show a high rate of affiliative behavior since positive attending and orienting behaviors (i.e. affiliation) are likely to be met with positive reactions. Thus, individuals motivated to secure social reinforcement are likely to engage in affiliative behaviors which would maximize probabilities of social reinforcement.

Motivation and Curriculum

Essential to any program of motivation enhancement is provision of imaginative and stimulating curricula. We have relied on three sources, primarily. Naturally, the many new and progressive program components developed or adopted by the DOE provided a rich source from which to draw. In our first year we borrowed many ideas from educators on all the Islands. The central and district office staffs generously shared ideas, materials, and time, helping us to begin KEEP with a storeroom of curricula.

National sources also provided valuable contributions. We visited a number of regional centers, education research and development

centers, universities, and model school programs.

Finally, we were fortunate in having teachers on the staff who had functioned in various specialty roles in their previous jobs. Their experience, talent, and resources provided the final source.

A full description of the KEEP curriculum is in preparation. In many ways it is no different from that found in many good DOE classrooms. Some of the examples that may be of interest are presented in Technical Reports currently available. For example, the math component that is described in a consultation research report is similar to that used at KEEP (see Technical Report #22). The reading curriculum is described in Technical Report #23.

Increasing Student Motivation Through Teacher Training in Behavior Management

The benefits of positive reinforcement are hardly doubted by anyone, but in our work what is effective must also be practical. Could teachers, working in a regular public school classroom, be trained to use systematic reinforcement and related methods of behavior management?

We focused on increasing staff use of contingent social reinforcement. The advantages are obvious; praises and other forms of verbal approval are available to all teachers, require no special materials or additional funds, are congruent with most curricula, and rarely are opposed on ideological grounds.

A summary of the training procedures is presented in Technical Report #7. They rely on moment-to-moment observation of teacher and

pupil behavior, staff observation skill training, feedback to teacher-trainees through videotape and other media, and training in practical classroom research and experimentation. During their initial year, all KEEP teaching staff complete training in these areas.

To assess the results of training, we do daily monitoring of teacher and student behavior. The system serves several functions. The first is evaluative; it provides an up-to-the-moment assessment of the effects of our efforts to enhance student motivation. Second, it serves as feedback mechanism for the teachers. Finally, it helps to identify aspects of the classroom operation that affect student motivation. Technical Reports #6 and #19 present details of the procedure and the observation categories. The system defines specific categories of student behavior, e.g. on-task, which includes attending to teacher, doing work, etc., and specifies a procedure which observers are to use. Observations of individual children are taken on a daily basis. These data also allow for analysis of the correlates of individual differences in observed amounts of classroom work. At the same time, the children are observed, data are collected on several teacher behavior categories. For example, the amount of teacher praise is recorded. Technical Reports #6 and #19 describe this procedure, which is similar to the child monitoring system.

Results of Teacher Training in Behavior Management Techniques

After a little more than two years of operation, the achieved level of student motivation exceeds, averaged over a school year, 85+ percent of children on-task. The rate of disruptive, off-task, and between-task behavior is minimal after the first few weeks of the

school year (see Technical Report #6).

In Technical Report #6, we have presented the correlates of student on-task which include, significantly, amount of work actually completed during one month of school, and gains on standardized IQ and achievement tests from September to May. The data suggest that observed student work is a reliable and valid measure of the effects of motivation.

Whatever the reasons, two points are apparent after the first two years. It is possible to secure high rates of attentiveness and work productivity from children usually described as unmotivated; and, an added benefit is virtual elimination of behavior problems (see Technical Report #6).

Can these achievements be attributed to the use by KEEP staff of behavior management principles? Our continuing experience suggests that this is the primary reason for the 85+ percent on-task and elimination of behavior problems.

Perhaps the most dramatic evidence occurred at the beginning of the second year of operation, when the kindergarteners, who had averaged 87 percent on-task, had graduated to, and formed the initial KEEP first grade. These same children, who in their first year had been on-task 85 percent of the time, and rarely disruptive, were virtually unmanageable by their new teachers at the beginning of the second year at KEEP. For other project reasons, we had inserted new and less thoroughly trained staff into principal teaching roles. The result was chaos in the classroom.

An anecdote will illustrate. A staff member was learning to use the video recording system, which can be controlled remotely from the observation theater, and was taping one of the experienced KEEP teachers who was working with the first grade. As she finished, a new staff member entered and attempted to organize the children for physical education. For approximately ten minutes, the new teacher struggled to handle the situation, obviously attempting to use many behavior management techniques (she had been on our staff about three weeks). Then a "riot" broke out. children were dancing on the tables, leaping from the piano, wrestling, and screaming. The new teacher went outside to retrieve two children. The riot continued. Suddenly, on the tape, the children quieted down and began to drift into their seats. Into the picture walks their last year's teacher. The experienced teacher leaves. The new teacher enters. Another riot. This occurs twice more. It is clear from the tape, that the presence of the experienced teacher had an astonishing effect on the children.

Obviously, there are several plausible interpretations of this episode. We believe that the difference is in the experience and skill with which the two teachers used the principles of behavior management. Another of the new staff had no such difficulty--she had come to KEEP with several years of experience using reinforcement and other behavior management procedures, and rapidly learned to use the KEEP approach. Finally, the new teacher, who had had so much trouble in the first three weeks, showed significant improvement over the year in her ability to handle the children--this improvement coincided with increased effective use of behavior management techniques.

The on-task levels achieved in the first year did not generalize in the absence of effective behavior management. From our view, this was not surprising. We were, and continue to be, persuaded that current environmental factors, teacher behavior in particular, are more important determinants of behavior in elementary age children than the nature of their experience in preceding years. Thus, had the KEEP 1972 kindergarten group enrolled in a school which did not make determined use of motivation/behavior management techniques, the effects of one year of experience at KEEP would have been short lived. The notion that children can be "cured" at an early age and never again exhibit problematic behavior is supported neither by data nor by behavior theory.

Attentiveness and Motivation: Alternative Teaching Tactics

Increases in on-task behavior are achieved through social influence exercised by teachers, in their use of positive reinforcement and other behavior management procedures. To have influence over a child, a teacher must first have the child's attention. Thus, a fundamental aspect of our efforts to increase on-task is the reinforcement of attentiveness. This is done in a deliberate and systematic manner; while attention reinforcement occurs throughout the year, KEEP teachers take special care to do so at the beginning.

Various approaches are used. A teacher may ask the kindergarten class to look at a child who provides a model of how to sit and watch. In a first grade group, a teacher may praise one or more students, including the statement of a specification such as, "See how Mary is paying attention."

What is important about these examples is the implicit assumption that the immediate situation affects child attentiveness. We do not regard attention span as an interval governor which pervasively controls a child's behavior. If a child is less than adequately attentive, the teacher takes action that increases the likelihood of attentiveness. Thus, attentiveness is viewed as another classroom response, and is "taught" just as some aspect of the language program is taught. Inattentive children are provided a definition of what behavior is expected, perhaps by the teacher directing their attention to another child. Opportunities are provided for the child to practice being attentive, and to experience teacher approval for being attentive. The teacher attempts to initially reinforce as often as possible, by "catching" them" being attentive during the normal course of events.

In some cases, children have enrolled at KEEP with an already checkered academic career in Headstart or some other preschool program. The reasons for their inability to function in the classroom are examined to rule out medical or physical problems. Otherwise, we initially approach extremely disruptive and inattentive children in no way different from any other child. If this does not succeed, a special training program may be designed which focuses specifically on teaching a child how to sit, attend, take turns, and other basic forms of classroom behavior. This may occur in or out of the regular classroom, depending on whether we are also doing some training, research, or demonstration at the same time.

Technical Report #9 provides an illustration of this approach. In this instance, a child was taught to sit, raise his hand, and make

appropriate verbal responses; the program was designed to fit the child back into the regular classroom as swiftly as possible. Because he rarely engaged in any of the target behaviors, the reinforcement/behavior management system in the classroom did not work. However, once he acquired the behaviors in the special situation, he fit into the regular classroom and began to respond to the reinforcement contingencies exercised by the teacher.

Tokens and Good Work Awards

We have also experimented with various forms of material reinforcement. Technical Report #11 reports on a token system that was derived from, and was integral to, the curriculum component that the teacher was using. Children were given stars for paying attention, finishing their work, giving correct answers, etc. After accumulating a certain number, a child was given privileges, e.g. a run outside, or a Good Work Award (GWAs). After reading instruction began, letters were substituted for stars: in this case the reinforcement was a Friday reading party. GWAs were dittoed notes (see Technical Report #12) with illustrations and a note indicating that the child finished his work for the day. They were given some importance by a "teacher build-up" and subsequent recipient of GWAs were given ample praise. The effect was enhanced value attached by the children, which in turn made the GWAs more effective as reinforcers. Also, many parents responded positively when they were taken home, adding to their motivation enhancement value.

We have not adopted a general token or material reward system. Our intent was to first examine how much could be achieved by teacher

praise, and other forms of social reinforcement. At this point, we continue to feel that tokens are best used when they are an intrinsic part of the curriculum component, e.g. letters in the reading program. Token systems have very important uses, and we may yet expand our use of them after additional research and experience in consultation to the public schools.

Is it Practical?

Earlier, we noted that what we develop or demonstrate at KEEP must be practical. It must be able to fit into DOE practices. The test of practicality we use is success in training DOE teachers to effectively use the techniques we have been describing. Technical Report #22 summarizes our efforts in this regard. In brief, we conclude that the motivation enhancement techniques can be taught, and used effectively in the public schools. Detailed presentations to support this conclusion are made in forthcoming Technical Reports. We have found that teachers in both urban and rural schools can profit from KEEP training, as evidenced by the effects on the behavior of their students.

Motivation and Classroom Organization

There are environmental aspects in addition to the behavior of the teacher that affect child motivation. We have experimented with several alternatives.

Our initial classroom organization is best described as an open, learning-center, and large group. In this arrangement was achieved the 85+ on-task rate described previously. It was evident that the children appreciated the arrangement. Work productivity was high, disrup-

tiveness low, and significant long term gains were achieved (see Technical Reports #5 and #6). However, it was also evident, even from casual inspection, that the bulk of student time was spent socializing. Whether of cultural origin or not, peer affiliation was the principal behavior around the little tables. Technical Report #17 reports our effort to detail precisely how much time was spent actually on academic work; this definition was much more stringent than on the on-task observations, which included a wide range of appropriate classroom activities. The results were instructive: about 70 percent of the time at the learning-centers was spent chatting, getting materials, waiting for teacher help, and playing. Thirty percent was devoted to academic work.

We could have tried to prevent peer socialization, though given the children's proclivities, it seemed unlikely to be successful. Or, we could rearrange the environment to reduce peer socialization, at least for short intensive study periods. Technical Report #18 describes an experiment comparing child work performance in the centers versus small, individual study cubicles. There were no differences in learning or performance. Analysis suggests that in the learning-center setting, effective teacher use of behavior management techniques has such a profound effect on work rates, that it overrides the consequence of the childrens' peer orientation. In the absence of a skilled user of behavior management techniques, the cubicle arrangement may be very useful.

Given the orientation to fellow students, it would seem likely that the children might be particularly attentive and motivated in a peer tutoring situation. To test this, we compared rates of on-task

in peer tutoring to regular classroom rates. The comparison favored the regular classroom situation: the average on-task in peer tutoring was less than 85 percent, compared to the 87 percent on-task average in the regular classroom. Moreover, children from homes in which sibling caretaking was featured were only slightly more likely to be attentive to the peer tutor; in the regular classroom, there was no difference. Technical Report #20 provides a detailed description of this study.

Architecture and social and classroom organization do affect motivation by influencing the behaviors we use to index motivation. To this point, however, we have consistently found that effective use by teachers of behavior management techniques described previously can often offset the impact of situational factors. Our work in this area has not been finished. Technical Report #19 details an elaborated classroom observation scheme, including a computer storage and retrieval system. When operative, this system will provide for each school year a detailed analysis of child and teacher behavior in each of the various settings that occur in the classroom: small and large groups; academic and social activities; experienced and inexperienced teachers; large and small rooms; etc.

In one major and successful consultation effort, a principle element was reorganization of the classroom format (see Technical Report #27). In this case, the consultant used our experiences with the basic KEEP classroom organization to design a program for the host school. The furniture was rearranged to allow for two centers of work. The first allowed for teacher instruction and individual seatwork in math. The second was a center for math games that were both appealing

to the students and instructive. A math continuum was devised and each student's level carefully assessed. A system was created that rewarded completed and accurate work with access to the game center. The original complaint that too few students were motivated to do math was handled by a combination of classroom organization and reinforcement. The host teachers were pleased, and the students were motivated.

In sum, the impact of classroom organization on motivation is less pervasive than that achieved through teacher behavior. However, there may be instances which favor some sort of environmental approach to motivation enhancement. It is clear that the effective use of reinforcement techniques depends on teacher skill and energy. Thus, in the case of the learning-centers, motivation might become unacceptably low in the absence of either teacher skill or energy. An environmental solution, such as the study cubicles might, in that case, be favorable.

We have since learned that Dr. Wahler and his associates (University of Tennessee) have concluded that 30 percent actual work time is around the upper achieveable limit. They consider a 90 percent on-task, i.e. appropriate classroom behavior in a variety of contexts, and 30 percent academic work rate (strictly defined) to be a standard against which programs can be judged. Thus, it is accurate to describe KEEP students as motivated.

* * * * * * *

There is a misleading simplicity to our descriptions of motivation enhancement. It might seem that we merely recommend that teachers be positive, praise students, and so forth.

In fact, the teachers at KEEP found learning to do this systematically and regularly was difficult and demanding of their attention and energy. It is also easy to slip, we have found, and lose student attention and motivation. Reading a summary of methods of teacher training at KEEP will give pause to any thought that systematic use of these techniques is easily learned, and quickly implemented (see Technical Report #7). Another report contradicts the notion that the techniques are only temporarily needed (see Technical Report #6).

Systematic reinforcement is difficult because of what it requires of the teacher beyond the production of praises and approvals. Careful, continuous observation of child behavior is fundamental to effective use of reinforcement. To make the observations useful, the teacher must be able to define precisely what response she wants from a child at any time. Ambiguity in the mind of the teacher with respect to her criteria will preclude effective use of behavior management techniques. The energy and concentration required by the constant scanning, evaluating, assessing, reinforcing can be exhausting. It is not a question of being pleasant; it is the deliberate and systematic use of personal behavior to achieve social influence and enhance motivation.

There are other difficulties. To use reinforcement techniques effectively, the teacher must learn some principles of human behavior that may sharply contradict her former ideas. Many teachers find it against common sense to believe that attention--even scolding a child--can have the effect of increasing bad behavior. Yet it can happen, and we have observed it many times in Island schools, and at KEEP. A teacher can inadvertently encourage the very actions of a child that are most disruptive by scolding, disapproving, and so forth. We find

this happens most often when the child is otherwise ignored.

Other educators feel that motivation should come from within, that external rewards of any kind are counterproductive of character formation. We agree that much of importance in human affairs seems controlled by aspects of human personality that are fixed within the individual. We also agree that parents and educators alike must take care to see that children are socialized to have morals, values, and the strength of character necessary to contribute to a just and humane society. But we also know that children, indeed everyone, are responsive to their environment; we believe that we can show that teachers will reinforce behavior whether that is their intention or not. We think that our work at KEEP shows that it is possible to attend carefully to these natural processes and still be faithful to human values.

Conclusions

We regard, as virtually completed, the motivation research goals stated in the KEEP proposal. Further effort will be needed, but the findings are clear and the direction of appropriate KS/BE action can be stated. The status of motivation inquiry is now this:

1. It is true that our children arrive at school under-inclined toward academic work.

2. We have developed ways of providing sufficient motivation within the classroom to produce excellent levels of attention and effort.

3. We have developed ways of teaching these methods, and have demonstrated that we can successfully train public school teachers to use them.

4. For our children, continuing attention to these methods is necessary, and possible.

5. While these efforts at enhancing motivation are a necessary condition for satisfactory student progress, they are not sufficient. Even when our children are attentive and working hard, ordinary curriculum does not suffice to bring their school achievement up to the national range.

6. Our findings contradict explanations of Hawaiian child educational problems that rely entirely on attribution of individual and social deficits. Whatever the reasons for the initial disinclination toward academic work, solution of the problem can be made through adjustments in classroom practices. Intervention into Hawaiian family life and practices is not supported by our findings.

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